ELSEWHERE IN THE CS

Computer Highlights Society Magazines

The IEEE Computer Society’s lineup of 13 peer-reviewed technical magazines covers cutting-edge computing topics, including scientific applications, Internet computing, machine intelligence, pervasive computing, security and privacy, digital graphics, cloud computing, and computer history. Here, we highlight recent issues of other Computer Society magazines.

Software

Refactoring alters a program’s source code without changing its external behavior, typically to improve the design. The articles in IEEE Software’s November/December 2015 special issue on refactoring range from the historical, exploring the approach’s research origins; to the practical, exploring software developers’ experiences with it; to the theoretical, exploring new techniques that haven’t been used in production yet.

Internet Computing

Our ancestors left behind few records, but today, we’re creating and preserving increasingly complete digital traces and models of almost every aspect of our lives. IEEE Internet Computing’s November/December 2015 special issue on the Internet of you explores this phenomenon—from small user-centric models of individuals to real-time analytics of large aggregations of user data—including its technologies and challenges.

Global climate change and its impact on natural resources, infrastructure, and health are among the 21st century’s biggest challenges. Great uncertainties remain as to how to deal with the issue and how ecosystems and, for example, water, food, and energy supplies will cope. Both the climate-science and climate-change fields rely heavily on computationally intensive simulations and data analysis. This is the topic of CiSE’s November/December 2015 special issue on computing and climate.

Security & Privacy

In response to ongoing challenges, spending on information security has grown steadily and eventually might become unaffordable. To deal with rising costs, governments and companies must carefully balance tradeoffs between security and privacy. These and related matters are discussed in IEEE S&P’s September/October 2015 special issue on the economics of cybersecurity.

Cloud Computing

“The Strategic Value of the Cloud,” from IEEE Cloud Computing’s July/August 2015 issue, identifies four major strategies that exploit the cloud and related approaches such as big data, social media, mobile technology, and the Internet of Things. The article also describes the high-level architectural patterns that each strategy entails.

Computer Graphics

The authors of “More Than Telling a Story: Transforming Data into Visually Shared Stories,” from CG&A’s September/October 2015 issue, look at how the visualization community has discussed visual storytelling. They present a visual-data storytelling process, incorporating the steps
involved in finding insights, turning them into a narrative, and communicating this narrative to an audience. They also discuss future research opportunities.

**Intelligent Systems**

In this era of big data, knowledge engineering faces fundamental challenges caused by fragmented knowledge from heterogeneous, autonomous sources with complex, evolving relationships. Older knowledge-representation, -acquisition, and -inference techniques must be updated. In IEEE Intelligent Systems’ September/October 2015 issue, “Knowledge Engineering with Big Data” presents BigKE, which is a knowledge-engineering framework that promises to help with the challenges.

**MultiMedia**

Ultra-high-definition (UHD) video will significantly enhance the user experience with higher spatial resolutions, frame rates, and sample bit depths, as well as a wider color gamut. However, this requires increased bandwidth. “Manipulating Ultra-High-Definition Video Traffic,” from IEEE MultiMedia’s July–September 2015 issue, explores on-demand UHD video streaming using the latest video-compression and -delivery technologies.

**Annals of the History of Computing**

Data’s impact on society and the advanced state of data science indicate it is now time for computing historians to begin historicizing data directly. Computing historians are uniquely positioned to probe the entanglement of networked infrastructures, data, and cultures of computing in the recent past and near future, according to “Toward a Hermeneutics of Data,” from IEEE Annals’ July–September 2015 issue.

**pervasive computing**

Technology use is already pervasive across the food industry. For example, sensors help monitor plant and animal health, and applications support the supply chain, consumer grocery shopping, and individual dietary activity. Technology improvements will only increase this trend, which is explored in IEEE Pervasive Computing’s October–December 2015 special issue on pervasive food.

**Professional**

Advances in mobile computing and communications, ambient intelligence, and ubiquitous sensors have driven the rise of wearable computing, the topic of IT Pro’s September/October 2015 special issue. The technology facilitates a new form of human–computer interaction via small, on-body devices that are always connected, hands-free, and less distracting than handhelds. This leads to a new form of synergy between humans and computers, offering multitasking capabilities and consistency.

**micro**

As the benefits of Moore’s law progressively diminish and come at a greater cost, there is a growing push to consider alternative approaches to increasing computational capabilities fast enough to continue spurring innovation. IEEE Micro’s September/October 2015 special issue on alternative computing designs and technologies presents several of these approaches.